

FAUNA AND FLORA OF THE GREENLY ISLANDS, PART I

INTRODUCTORY NARRATIVE AND VERTEBRATE FAUNA

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Fig. 1-2.

IN December, 1947, a party of five men, comprising members of the Adelaide Bush Walkers, Messrs. H. A. Lindsay (President), C. Hutchinson, A. Williams, and the junior author, together with F. J. Mitchell of the South Australian Museum staff, visited the Greenly Islands.

The object of the trip was to make as complete a survey of the islands' fauna and flora as a stay of ten days would allow, in order to ascertain whether the islands supported sufficient native life to warrant an endeavour being made to have them declared a permanent sanctuary.

The islands have an approximate base area of 680 acres, and are huge bosses of fine grained biotite granite, rising abruptly from the Southern Ocean in latitude $31^{\circ} 39'$ S. and longitude $139^{\circ} 37'$ E. They are approximately one and one-half miles long, and at a maximum half a mile wide. The main island consists of an approximately east to west ridge, which rises to a peak summit of 750 feet at its eastern extremity. Toward the north-west it is subdivided by a crevasse through which the sea surges continuously over partly submerged rocks. The passage between the two islands is negotiable on foot when the sea is calm.

The south-western section is almost detached by a similar but more spectacular chasm, with only a saddle of rocks and wind-blown sand bridging the gap between the two granite masses. About 250 yards off the eastern end of the island lies Seal Rock, a granite islet about 250 yards in diameter and covered toward its summit with low herbage.

Shortly after midday on 7th December, 1947, the cutter "Wandra" carrying the party dropped anchor within 100 feet of the shore in six to seven fathoms of water, on a sandy bottom, and a landing was achieved on a narrow rocky edge, immediately to the right of a blow-hole in the cliff face. This appears to be the only safe landing place, for although access has been gained on the southern side of the island the swell renders the operation hazardous. Elsewhere the granite face plunges almost perpendicularly into the sea, there being no beach or shingle.

The vegetation is non-eucalypt and on the main island consists principally of a dense entanglement of Sheoak (*Casuarina stricta*) and Titree (*Melaleuca*

pubescens), the Sheoak predominating along the central ridge and northern slopes, while on the southern slopes the Titree is almost impenetrable. The Titree appears to be much more tolerant of the salt conditions than the Sheoak, as the dense Titree scrub extends to within 150 ft. of the southern seaboard, being particularly dense over the isolated patches of travertine limestone. The Sheoak which does extend to the southern slopes is for the most part stunted, and considerably twisted. Whereas, the grasses and other small plants have been greatly depleted by the wallabies on the main island, they grow in profusion on subsidiary areas, presumably not occupied by wallabies. These heavily vegetated parts probably play an important part in the ecology of the main island, as there must be continual wind-blown reseedling from these virtually insular areas.

Evidence of earlier human visitors was found at several places. A recent camp, presumably that of Mr. H. H. Finlayson, who landed just prior to the present party to observe the wallabies was found at 250 feet in a Titree clump on the northern slopes, while an old three-sided rock shelter and fireplace was discovered immediately below the main ridge to the left of the landing place. In addition, a layer of about half an inch of carbonaceous remains, apparently those of a fire, were found beneath a layer of about two inches of consolidated penguin excreta in the floor of the only natural rock shelter on the island, a cave in the northern face. Although much of the scrub appears to be virgin, charred lichen-covered Sheoak stumps at several places toward the eastern end indicated an early scrub fire.

Relevant to the above is some information supplied by an old Eyre Peninsula identity, Mr. W. G. Morgan of Coulta. When young, Mr. Morgan was associated with T. B. Hawson, one of a family of well-known Eyre Peninsula pioneers. Hawson told him of Billy Dunn, a dark-skinned sealer of probable Malay extraction, who spent many months sealing on Greenly Island together with his full-blooded aborigine wife, Charlotte. When their boat sank in the passage to the seaward of Point Sir Isaac while taking a load of seal skins from the island to Port Lincoln, Dunn was drowned. His wife managed to struggle ashore.

No potable water supplies of appreciable size were found, although at the foot of the granite sheets near sea level, several small seeps were located. These were for the most part too highly mineralized and of insufficient quantity for human needs. From the largest (see fig. 1) six gallons (two by day and four by night) were collected and later used for cooking and washing purposes. This visit was made during a prolonged spell of hot, dry weather, and no doubt under cooler conditions a more favourable position would be found. A large pool fed

by a seep and estimated to have a capacity of 60 gallons was found near sea level on the eastern side of Anthony Island. This cavity was polluted by seals, but if cleaned out and allowed to refill may furnish a suitable supply.

Owing to the absence of a sandstone or limestone cap to act as an aquifer, the steep sides of the island, and the impervious nature of the granite, the island rapidly sheds most of the rain. This is indicated by the numerous channels cut in the granite face of the island by the rain water as it rushes seaward. The largest of these is about 12 feet wide, 100 feet long, and 3 feet deep. Blocking of some of these channels would create small water reservoirs in an emergency. Rudiments of a former limestone cap were found on the southern slopes, where several large sheets of limestone appear to have been checked in their slide toward the sea by granite ledges.

The soil of the island consists of powdered granitic sand intermixed and heavily covered with vegetable debris. It is anchored by the roots of the trees to a depth, in places, of as much as two feet, although on the average only a few inches. A widespread fire would soon denude the island of vegetation by permitting the rapid wind and water erosion of the loose sandy soil.

The map (fig. 1) was compiled by the present party and we have to thank the Lands and Survey Department, Port Lincoln, for assistance in allowing us to borrow instruments to facilitate its compilation. Time did not permit the accurate plotting of the topography, but the key heights were taken and the approximate 100-ft. contours have been drawn in from sight. The names shown on the map have been submitted to and accepted by the Nomenclature Committee of the Royal Geographical Society of South Australia.

This survey has indicated the desirability of declaring the islands with their fauna and flora a sanctuary, thus protecting them from interference. From an economic viewpoint there are no apparent reasons against such a proposal; there are no guano deposits of commercial value thereon, its small area is of generally rugged nature making it unsuitable for pastoral purposes, while there are no Mutton Bird rookeries to exploit. The almost complete absence of alien plants and animals likely to interfere with the welfare of the native life is a further favourable factor.

MAMMALIA.

The mammal section of this paper is a brief account of the observations of the party and no attempt has been made to deal taxonomically with the material collected. It is expected that a more detailed report will be prepared by Mr. H. H. Pinalayson, who landed a few weeks prior to the present party expressly to study the mammals.

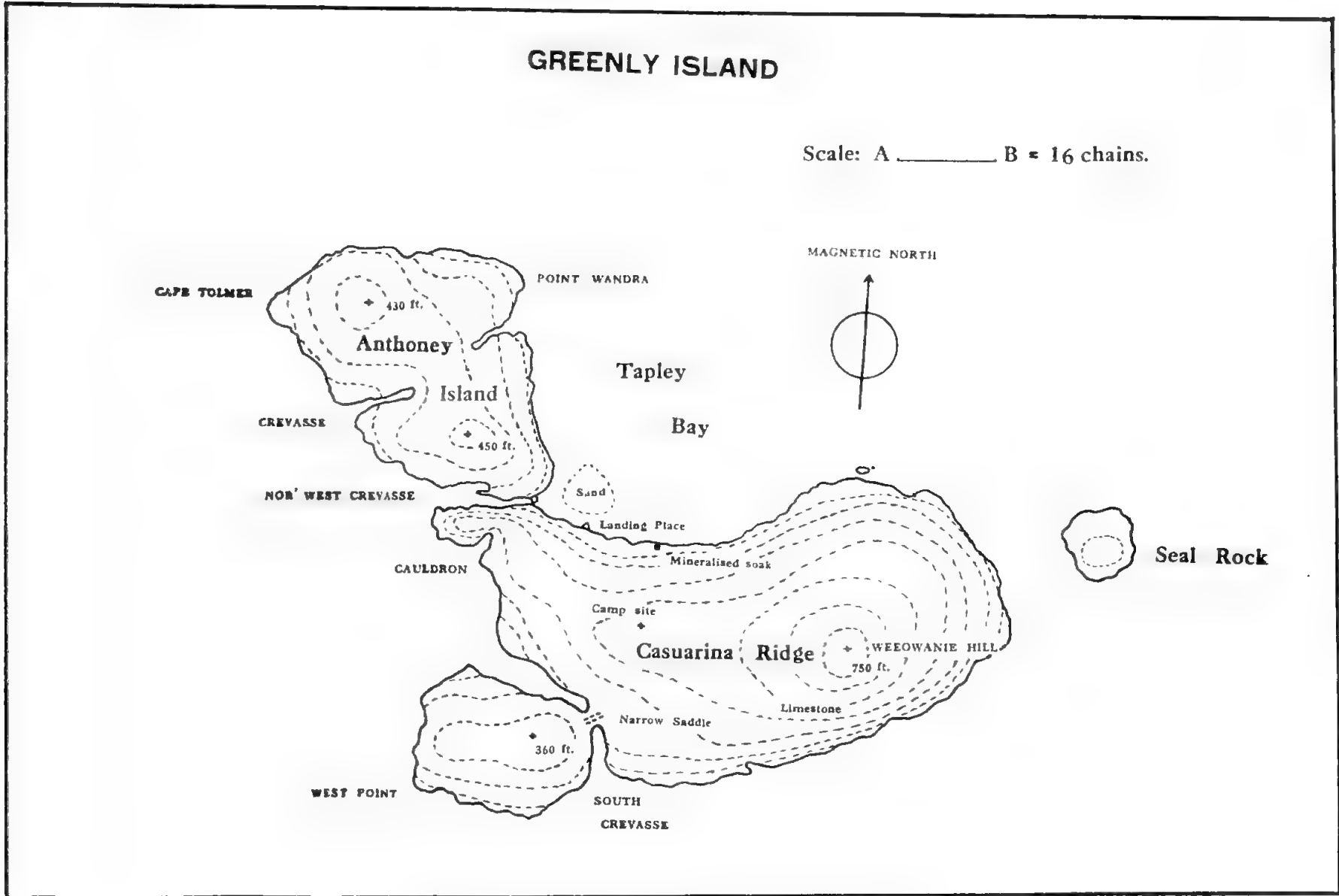


Fig. 1. Map of the main island and adjacent islets.

The island supports four species, three indigenous and one introduced. The Hair Seal *Arctocephalus cinereus* was the first to make itself known, curiosity having led several specimens into swimming out to greet us. Later a small colony of nine Fur Seals *Arctocephalus doriferus* was found living in the turbulent waters of the Nor'west Crevasse. This small community remained almost exclusively on a ledge, sunning themselves by day and going out through the crevasse into the Southern Ocean swell to feed in the early morning and evening.

The Scrub Wallaby *Thylogale eugenii* was first seen on the evening of the day of landing, several specimens being flushed in the scrub immediately behind the camp. This wallaby is believed to have been introduced from Kangaroo Island in about 1905 to act as an emergency food supply for possible castaways. The fourth mammal, a native rat, *Rattus murrayi* var. was not observed during the first few days, although later it made its presence more than felt by impudent and fearless explorations among our gear and food supplies.

Considerable interest was attached to the wallaby population, as it had been hoped that a species of Rock Wallaby (*Petrogale*) allied to an extinct mainland species might be found on this isolated island. However, although some seventy skulls were examined, all were those of the introduced Scrub Wallaby, and no signs were found of any other species.

The wallaby has overrun the main island, and signs of its activities can be seen everywhere. It has eliminated many of the smaller plants, which are abundant on the subsidiary islands, and the dense titree scrub is a network of low tunnels. Although it is difficult to assess the size of the population owing to the large area of dense scrub and sameness of the many groups, it is estimated that the number of wallabies would approach three figures. Although no live specimens were seen, several skulls collected on Anthony Island indicate that some specimens are, or have been at some time, there also. The dense profusion of ungrazed vegetation and the absence of regular pads indicates that few, if any, are at present living there. No specimens or skulls were found on the semi-detached south-western sector, the drop from the main island ledge to the connecting saddle apparently forming a barrier to their migration. Observations of the wallabies feeding in the open in the early morning and evening revealed that there were two colour phases, a minority of specimens being a noticeably darker shade of brown than the normal grey-brown specimens. When small groups were disturbed from the scrub during the day it was evident that the darker phase kept to a large extent separate from the bigger mobs of lighter coloured individuals. While feeding during the evening both phases intermingled freely.

The native rat, a form most nearly allied to *Rattus murrayi* Thomas, which species was first taken by Professor Wood Jones on Pearson Island some 60 miles north of Greenly, was extremely numerous, and our camp on the main ridge provided an attraction for them. The noises of their scavenging about the camp in search of supplements to their presumably vegetarian diet was almost as big a barrier to sleep as the raucous calls of the Fairy Penguins. In spite of searches under stones and through the various tunnellings in the sheoak and titree debris, no sign could be found of the rats by day. Although no specimens were seen, similar tunnels on Anthony Island indicated that the rats were there also. During our stay twelve specimens were shot and preserved for examination. It is interesting to add a further observation to the previously noted predominance of males.¹ Of the specimens shot, ten were males.

The Hair Seal colony, which extends along the whole of the partially sheltered northern side of the island, contains more than 100 individuals. These were found in small family groups, generally a bull, two or three cows and several pups basking on the rocky ledges of Tapley Bay by day, then foraging for food during the evening and early morning. As the breeding season had finished some weeks previously, all pups took readily to the water. Sometimes the Hair Seals would climb hundreds of feet up the precipitous face of the island, and one individual, possibly sick, was found on the crest among the scrub. The presence of a small colony of nine Fur Seals in the broken water of the Nor'west Crevasse indicates that these animals are gradually becoming re-established on the islands to the South of Eyre's Peninsula, and it is hoped every effort will be made to prevent a re-occurrence of the slaughter which occurred about thirty years ago.

AVES.

During our short stay observations were made on fifteen species of birds. Several of the marine birds and four non-marine species were found to have established permanent breeding colonies. These non-marine birds are the Red-cap Robin, *Petroica goodenovii*; the Welcome Swallow, *Hirundo neozena*; the Silver-eye Finch, *Zosterops lateralis*; and a Crow, *Corvus sp.*

The following species were observed:

RED-CAP ROBIN, *Petroica goodenovii* Vigors and Horsf.

This colourful robin is common, and was found to be breeding freely, nests being frequently observed in the isolated patches of Titree along Casuarina Ridge. One nest immediately behind the camp contained three young, and it appeared as if there were more immature birds than adults.

¹ Wood Jones (1924): *Trans. Roy. Soc. S.A.*, xlviii, p. 11.

SILVER-EYE FINCH, *Zosterops lateralis* Lath.

This finch was also common, although less observed, as it favoured the stunted Titree growing on the precipitous slopes and ledges below 250 feet. Although no nests of this species were definitely recognized, several young birds incapable of sustained flight were observed.

YELLOW-WINGED HONEY-EATER, *Meliornis novae-hollandiae* Lath.

Three somewhat bedraggled specimens were found in the Titree on the northern slopes of the island during the first week and one was shot for the collection. The remaining two were later observed on Anthony Island.

ROCK PARROT, *Neophema petrophila* Gould.

Flocks of these birds apparently make deliberate periodic trips to the island, as several flocks were seen arriving and others departing in a direct line to the mainland. The reason for their visits was not definitely ascertained, but they were often disturbed on the ground, and it has been suggested that the pig-face seed, of which there is an abundance, is the attraction.

WELCOME SWALLOW, *Hirundo naevana* Gould.

Swallows were found about the ledges and caves below the ridge of the main island, although invariably away feeding over Anthony Island in the early morning. It was interesting to note the far greater use of sheoak needles and other organic matter in the nests of these birds on an island where good binding earth is absent.

CROW, *Corvus* sp.

No specimens of the crow were taken, and in consequence a positive identification was not made. Seven birds roost regularly in two large sheoak trees, just below the summit of the island. These trees contain several nests, only one of which appears to have had recent use.

NANKEEN KESTREL, *Fulco cenchroides* Vigors and Horsf.

A single specimen was seen preying on the lizard *Egernia whitii multiscutata* which abounds.

WHITE-HEADED OSPREY, *Pandion haliaetus* Lin.

A pair of these eagles has taken up permanent residence on the island, and two enormous nests were found near the summit and another on Anthony Island. They undoubtedly take considerable toll of the young wallabies, as numerous skulls and other wallaby remains were found about the nest sites. Beneath several large sheoak trees, the remains of several large wallabies and

birds were found, and it is suspected that these trees are used as feeding trees by one of the larger eagles, presumably the White-breasted Sea-eagle, *Haliaeetus leucogaster* Gmelin. However, no specimens were seen.

FAIRY PENGUIN, *Eudyptula minor* Forst.

By day the penguins were found in burrows under rocks to a height of about 350 feet. Although the breeding season appeared to have been completed, several young specimens were found in breeding burrows high up on the island. These juvenile and several moulting specimens were examined for exoparasites and found to be badly infested, it being evident that they had not entered the water for some time. These parasites were not present on fully feathered specimens.

CAPE BARREN GOOSE, *Cereopsis novae-hollandiae* Lath.

Three pairs of these fine birds were seen on Anthony Island. They could be approached quite closely before taking alarm.

PACIFIC GULL, *Gabianus pacificus* Lath.

This gull was numerous and a nest containing two well-developed young was found on a rocky ledge on Anthony Island. The amazing swallowing powers of this bird were illustrated on several occasions when specimens pirated our fish catch. Parrot fishes of up to three-quarters of a pound weight were swallowed with apparent ease.

SILVER GULL, *Larus novae-hollandiae* Steph.

Big flocks visited the island of an evening and roosted on Seal Rock.

CRESTED TERN, *Sterna bergi* Lich.

Several small flocks were seen about Tapley Bay.

SOOTY OYSTER-CATCHER, *Haematopus unicolor* Wagl.

Many were seen about the ledges of Tapley Bay and on several occasions a pair waited about to clean up any surplus shell-fish bait after we had finished fishing.

MUTTON BIRD, *Puffinus tenuirostris* Temminck.

Contrary to expectations no Mutton Birds were found, although several were observed flying about the boat as we approached Tapley Bay. On the eastern end of the island a series of old nesting burrows was found, but it was obvious that these had not been used for several seasons.

REPTILIA.

Although present in great numbers, examples of only six species, representing two families of the *Lacertilia* were collected. Of these, two species of the *Scincidae* are represented by single specimens. The gecko, *Phyllodactylus marmoratus* Gray, and the skink, *Egernia whitii* Lacep., were the most abundant species.

Except where a discussion on the synonymy has been introduced, only the original reference to each species has been given for brevity.

SAURIA.

Family GECKONIDAE.

PHYLLODACTYLUS MARMORATUS Gray.

Diplodactylus marmoratus Gray, 1845, Cat. Lizards, p. 149.

The gecko appeared to be the most abundant species and a large series of specimens was collected. They show no structural differences from mainland specimens. The colouration is very variable.

Measurements of a large specimen: 97 (49+48) mm.—tail regenerated.

Family SCINCIDAE.

EGERNIA WHITII Lacepede.

Scincus whitii Lacepede, 1904, Ann. Mus. Paris, iv, p. 192.

This species is also common, it being present in large numbers wherever there is sufficient fallen timber or loose granite to provide cover. Contrary to the findings of Proctor² all ten specimens collected show a more uniform scalation than is normally found in mainland populations of this species. Although some of the head-shields are often subdivided, the relative lengths of the principal sutures are comparatively constant.

In general appearance these specimens closely resemble the typically coloured mainland material with the usual light brown vertebral stripe, broadly bordered on either side by a black stripe enclosing a series of light brown spots. However, they show a marked increase in the number of mid-body scale rows, 32-38 being the range generally quoted for the species, and 40-46 is the range indicated by these ten specimens. The dominant mid-body scale count is 43. Another outstanding difference is the relative proportions of the interparietal,

² See also Proctor, 1923, *Trans. Roy. Soc. S.A.*, xvii, p. 80.

it being as wide as, or wider than, and only about two-thirds as long as the frontal. The above differences make it apparent that the Greenly Island population constitutes a distinct insular race and the name *multiscutata* is here proposed for it.

EGERNIA WHITI MULTISCUTATA subsp. nov.

Prefrontals, frontoparietals and interparietal distinct, the latter completely dividing the parietals and making contact with the single pair of nuchals; as wide as or wider than and only about two-thirds as long as the frontal; frontonasal separated from the frontal by the prefrontals which form a median

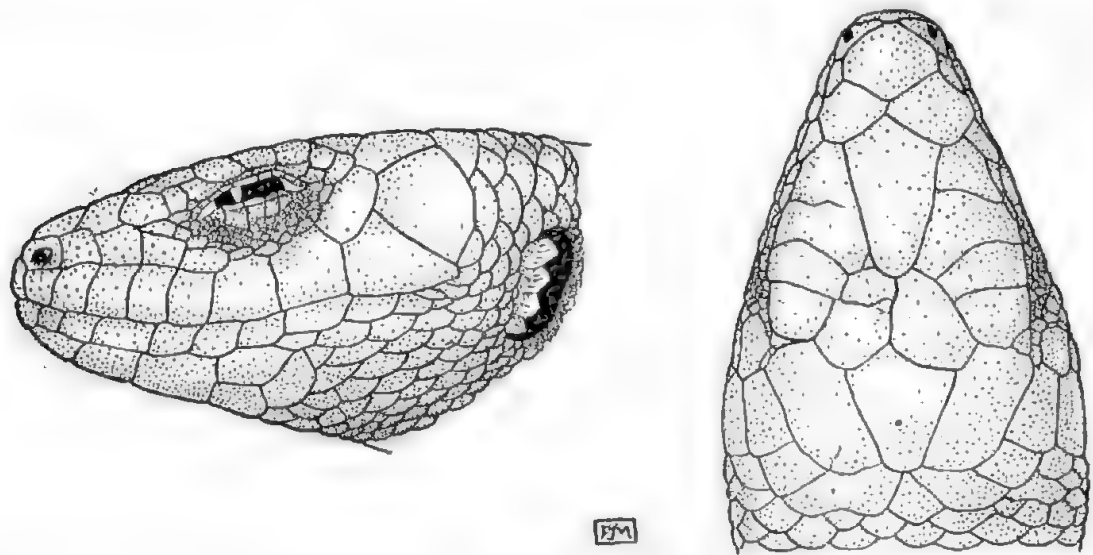


Fig. 2. *Egernia whiti multiscutata*: dorsal and lateral views of the head of the holotype male ($\times 3$ approx.).

suture; in contact with the rostral. Limbs relatively long, when adpressed along the body they overlap, bringing the ankle and the wrist into contact. Five supraoculars, second largest, in contact with the frontoparietal; 7-10 supra-ciliaries, the first greatly enlarged; three temporals, posterior large, triangular. Three or four white auricular lobules present. There are 43 smooth scales at mid-body and 25-29 unicate lamellae under the fourth toe.

Colour: A light brown dorsal stripe broadly bordered on either side by a dense black stripe enclosing a series of light brown spots. Remainder of dorsal and lateral surfaces irregularly mottled with dark and light brown, the darker colour predominating. Auricular lobules white and an occasional white scale in the dorso-lateral body area. Ventral surfaces a uniform light brown to grey with a dark blue marbling under the throat. One paratype male had a bright orange ventral surface in life."

Distribution: Holotype, allotype and eight paratypes, S.A.M. R.2636, Greenly Island, S.A.

Measurements: Holotype male. Total length: 214 mm.; body length: 88 mm.; tail length: 126 mm.; head length: 20 mm.; fore limb: 27 mm.; hind limb: 39 mm.

HEMERGIS PERONII Fitz.

Seps peronii Fitzinger, 1826, Neue classif. Rept., p. 53.

Six specimens were taken on the main island. All are typical of mainland specimens.

Measurements of the largest specimen: 138 (53+85) mm.—tail complete.

RHODONA TETRADACTYLA Lucas and Frost.

Rhodona tetradactyla Lucas and Frost, 1895, Proc. Roy. Soc., Viet., vii, p. 268, and 1896, Rept. Horn Exp., ii, p. 142, pl. xii, fig. 3.

Rhodona frosti Zietz, 1920, Rec. South Aust. Mus. I, p. 217.

A single specimen was taken at the extreme peak of the island. It compares well with the type description and figure. The four dorso-lateral series of spots are confluent into lines.

Measurements: 70 (57+13) mm.—tail incomplete.

Since Loveridge³ arrived at the conclusion that the elevation of *Rhodona* and other former subgenera of *Lygosoma* to full generic status would simplify the classification, *tetradactyla* is no longer pre-occupied, and must therefore hold precedence over the new name, *frosti*, proposed by Zietz.

ABLEPHARUS GREYII Gray.

Menetia greyii Gray, 1844, Zool. Erebus and Terror Rept., pl. v, fig. 4.

One specimen was taken in some sheoak debris at the camp. The general colouration of this specimen closely resembles that of *A. lineo-ocellatus* Dum. and Bibr. with an irregular dorsal series of black spots and occasional ocelli. However, it is immediately distinguished by the digits 5+4 and the unique supra-ocular scalation. The mid-body scale count of 22 appears to be very constant in South Australian examples.

Measurements: 39 (29+10) mm.—tail regenerating.

³ Loveridge, 1934, *Bull. Mus. Comp. Zool., Harvard*, lxxvii (6), p. 247.

ABLEPHARUS LINEO-OCELLATUS Dum. and Bibr.

Ablepharus lineo-ocellatus Boulenger, 1887, Brit. Mus. Cat., iii, p. 348 (syn.); Zietz, 1920, Rec. S. Aust. Mus., i, p. 220.

Ablepharus lineo-ocellata Proctor, 1923, Trans. Roy. Soc., S. Aust., xlvii, p. 81.

Ablepharus lineo-ocellatus var. *anomalous* Boulenger, l.c., p. 349.

Ablepharus lineo-ocellatus anomalous Loveridge, 1934, Bull. Mus. Comp. Zool., lxxvii, p. 377.

Ablepharus lineo-ocellatus var. *adelaidensis* Boulenger, l.c., p. 349; Kinghorn, 1924, Rec. Aust. Mus., xiv, p. 181.

This lizard is fairly abundant along the main ridge of the island, although exceedingly difficult to catch, as it disappears rapidly into the dense sheoak debris upon approach. Only two specimens were captured.

The mid-body scale counts are 28 and 30 and the supra-nasals are present in both specimens. Some dorsal ocelli are present in the smaller specimen.

Measurements of the larger specimen: 97 (55+42) mm.—tail regenerating.

Since the description of this species by Dumeril and Bibron in 1839, several attempts have been made to explain the large variation by dividing it into races. In endeavouring to find the race to which the above specimens belonged, a series of thirty-four examples from eighteen localities within South Australia were examined with the following result. Mid-body scale counts of 26 (4 specimens), 28 (8 specimens), 30 (11 specimens), 32 (6 specimens) and 34 (2 specimens) were obtained. Twenty-eight of this series possess supra-nasals, four do not and two have them present on one side and absent on the other. The colouration is also very variable, fourteen being with and twenty without the dorsal ocelli. Four specimens from widely separated localities in Western Australia were kindly made available for examination by Mr. I. Glauert of the Western Australian Museum. These four specimens appeared to partially contradict the findings of Loveridge (1934), as all four possessed supra-nasals and had the dorsal ocelli very conspicuous. The mid-body scale counts were 26 (3 specimens) and 28 (1 specimen). Kinghorn (1924) records a specimen as "var *adelaidensis*" from Cranbrook, Western Australia which possesses supra-nasals and has only 20 mid-body scale rows; also one "typical" specimen, presumably without the supra-nasals from Bornham, Western Australia.

The above results, together with those obtained by Peters (1874), Boulenger (1887), Loveridge (1934) and others, tend to indicate that this variation is in no way correlated with locality and therefore of doubtful taxonomic significance.

PISCES.

Owing to the limited time at our disposal and the absence of foreshore, no attempt was made to obtain a marine collection. However, in our endeavours to obtain fresh fish for food, several species were captured and a mention of these may be of interest.

The bulk of the fishes obtained over the rocky, weedy bottom were Parrot Fishes (*Pseudolabrus*) and four separate species were noted, *P. fucicola* Richardson, *P. miles* Bloch and Schneider, *P. punctulatus* Gunther and *P. tetricus* Richardson. The last-named was found to be the best food fish. Also common in the deeper water is the Blue Groper, *Achoerodus gouldii* Richardson, and several large specimens were caught. Two other species, *Threpterus maculosus* Richardson and *Scorpaena ergastulorum* Richardson, were also taken.

SUMMARY.

Notes are given concerning the physiographical features and fauna of the little known Greenly Islands, South Australia. A scincid lizard (*Egernia whitii multiscutata*) is described as new.

Note: Greenly Island was gazetted "a closed area with respect to animals and birds generally" on October 23th, 1948.